III. Existing Services

This section gives background information vital to understanding the existing telecommunications environment within California state government.

A. Overview of Existing Services and Costs

The Government of California is one of the largest telecommunications customers in the world. The state possesses a vast and sophisticated telecommunications infrastructure made up of multiple agency networks. The infrastructure reflects the complexity of the Government itself and the diverse missions of its agencies.

Table 1 identifies the major services administered by DGS/TD with their associated annual billing. The billing includes all costs for contracts, staff, operations, and statewide administration.

Service	**Annual Billing for Service**
InterLATA Long Distance Service	$18,742,000
Local Consolidated Service	$33,453,000
Data Services	$ 4,970,000
Voice Mail Services	$ 4,746,000
Local Long Distance Services	$ 6,396,000
Total	**$68,307,000**

Table 1 - Major Services Administered by DGS/TD

From the $68 million a year of managed services, DGS/TD bills for $30 million a year worth of services directly to its customer base. These are principally provided using equipment and services acquired through the CALNET contract with GTE and other contractors. The remainder of the services are billed directly to the Agency by the contractor providing the service.

Table 2 lists the major services billed by DGS/TD with their associated annual billing. The established rates are intended to recover DGS/TD's staff costs, operating costs, debt service, and other pro rata state administration business costs.

Service	Annual Billing for Service	Percent of Total Revenue
InterLATA Long Distance Service	$18,742,000	62%
CALDEX (includes voice mail for CALDEX customers)	$6,624,000	22%
Data Services	$4,970,000	16%
Total	$30,336,000	

Table 2: CALNET DGS/TD Billing by Service

B. Existing Rental Costs - Network Locations

The equipment at the major, minor and hybrid SCIPs are located on state property. Table 3 provides a list of existing state facility sites, the square footage of available space, and the existing rental cost.

Location	Square Footage	Annual Rental Cost
State Buildings		
250 Mariposa Mall, Fresno	1,540	$6,837.60
107 S. Broadway, Los Angeles	4,000	$71,040.00
2135 Akard Avenue, Redding	375	$6,660.00
1115 P Street, Sacramento	5,958	$105,814.08
1350 Front Street, San Diego	578	$10,265.28
525 Golden Gate, San Francisco	4,460	$79,209.60
31 East Channel, Stockton	902	$4,004.88
630 Sequoia Pacific Blvd., Sacramento	3,814	$36,612.00
DMV - First Avenue, Sacramento	588	$7,197.12
Private Leased Facilities		
3801 Pierce Road, Bakersfield	570	$6,000.00
Pending Space Assignments		
350 McAllister, San Francisco (Estimated)	3,200	$56,832.00
300 S. Spring St., Los Angeles (Estimated)	4,215	$74,858.40
1515 Clay St., Oakland (Estimated)	900	$15,984.00
TOTAL	**31,100**	**$481,314.96**

Table 3 - Available State Facilities

C. CALNET Suite of Services

The following is a representative listing of the services made available through the CALNET suite of services (estimated annual value of $68 million a year).

1. Long Distance

The long distance services consist of IntraLATA, IntraState, InterState, and international calling.

IntraLATA long distance calling is provided either directly via CALNET or through agreements with GTE, Contel, and Pacific Bell within their franchised territories or by the independent telephone companies under their normal tariffs. DGS/TD has no estimated value of the services provided by the independent telephone companies outside of the existing agreements. State agencies may use these agreements and tariffs for their intraLATA long distance calling not carried by CALNET. These intraLATA services are also available to local government agencies such as cities, counties, or state colleges and universities if they choose.

The IntraState calling is provided principally through a combination of state owned equipment acquired through the CALNET contract, and services acquired from the private sector. These services are rated and billed to the customers by the DGS/TD.

Included with the long distance services are 700-800-900 type services available with the existing CALNET equipment. However, today only the 800/888 services are offered. Also included is Calling Card services. State agency personnel are able to dial into CALNET, enter an authorization number and place a calling card type call. Calls within California access CALNET using a Feature Group B access telephone number. Outside of California, CALNET has a complimentary carrier arrangement with MCI to carry the calls. MCI provides the billing information so that DGS/TD may rebill customers for the service. The calls are billed to the Calling Card account using the existing CALNET billing system.

2. Long Distance Access

Agency access to the CALNET long distance service is obtained through one of two methods. The service allows for either switched access (Feature Group D) or direct dedicated access. DGS/TD staff works closely with the agency to determine what method is best for their specific situation.

For low volume users it is generally recommended to presubscribe to CALNET long distance service and use Feature Group D trunks for accessing the long distance network. For Centrex/CentraNet and PBX users, it is more likely that a direct trunk connection into the long distance network will be recommended. The primary determining factor is

generally the bottom line cost to the state for the service.

The costs for switched access are included in the usage rates billed by DGS/TD. The costs for direct dedicated access used to support consolidated services is also included in the usage rates billed by DGS/TD. The costs for direct access to dedicated agency equipment is typically billed separately by DGS/TD as a lump sum cost to that agency.

3. Local Consolidated Services

Local consolidated services consist of the telephone lines that are located in a common geographical area that can share a common service. These are typically Centrex and CentraNet services. Where more than one state agency has a need for telephone service in the same community, DGS/TD obtains the service, is the customer of record for the service, pays for the common features and access, and coordinates the implementation of the services for the agencies. The service provider works directly with the agency to install the service and bills the agency directly for their lines and features. DGS/TD receives an administration fee from the service provider to help offset costs for the common equipment and features as well as staff time in administering the program.

In Sacramento, Los Angeles, San Francisco, and San Diego, DGS/TD provides local telephone service, referred to as CALDEX service, directly from the state owned CALNET equipment. The service is very similar to Centrex in terms of features and functionality. The main limiting factor is that CALDEX is provided only to those agencies that are directly linked to CALNET equipment through state owned facilities. DGS/TD bills the agencies for the lines and features on CALDEX. A remote switching module is currently being installed to provide CALDEX service in the new Oakland State building.

CALDEX is technically capable of providing ISDN service, however, it is not being offered at this time. Agencies with an ISDN requirement are able to obtain the service with Centrex/CentraNet services. A coordination process is currently underway to ensure that all required elements are in place to support ISDN for CALDEX clients. These elements include: set types supported, service definition and features, rate establishment, ordering procedures, billing structure, trouble reporting, etc. When this coordination process has been completed, a service announcement will be made to CALDEX agencies.

4. Local Fiber Service

In Sacramento DGS/TD owns an extensive conduit structure with both copper wires and multiple pairs of fiber optic cable. The copper wires are used to connect the various state buildings to DGS/TD provided CALDEX service. There are 22 buildings connected to the conduit system in the downtown Sacramento area. In Los Angeles DGS/TD owns a conduit

structure that connects the three main state buildings in the downtown area. In San Francisco DGS/TD owns a conduit structure that connects two state buildings in the downtown area. The cost of these structures are built into the rates for local consolidated CALDEX service.

In 1987, DGS/TD contracted for the installation of fiber optic cabling between the buildings in the downtown Sacramento area. A 72 fiber cable was utilized, consisting of both multimode (primarily 62.5/125 and some 100/140& 50/125) and single mode fibers. The cable was arranged so as to form a 3 KM continuous loop, with 12 of the 18 buildings being directly attached to the loop. The other 6 buildings can access the loop via fiber spurs. The fiber cabling was routed between the buildings utilizing a combination of 4" underground conduit and a cable tray system within the state's steam tunnels. Typically, this cabling was brought into the main telephone room within each building, and terminated in a fiber optic patch panel. Access to the loop was achieved by using fiber optic jumpers and either Biconic or ST interconnections at the patch panel. DGS/TD maintains Rockwell 3X50 equipment at 7 downtown buildings which can provide access at DS-1 or DS-3 bandwidths to the Sacramento SCIP. In addition, the loop supports a number of specialized functions including an Ethernet network supporting the Energy Management System, point to point Ethernet links between departments in different buildings, some point to point DS-1 connections, and access links for various microwave systems utilized by CALNET and others.

DGS/TD currently contracts with a company for 7 day a week, 24 hours a day repair and maintenance services. The company must also meet certain DS1/DS3 performance requirements on the equipment under their contract. DGS/TD has developed a rate structure for many of the agencies utilizing the loop. There are several agencies, however, who are not charged because of their initial participation in the fiber loop project.

5. Building Wiring Service

DGS/TD has a contract with GTE to provide building wiring support in all CALDEX locations (Sacramento, Los Angeles, San Francisco, and San Diego). Agencies requesting additions or changes to CALDEX service have the option to use the GTE contract to install the necessary building wiring, connect the telephone instrument and test the service. This contract has also been used for extensive rewiring of buildings to support agencies' growing demand for enhanced information technology infrastructure. Agencies are billed directly by GTE for the use of the contract.

Building wiring support is also available using the existing Pacific Bell Centrex agreement. Agencies may obtain wiring up to the instrument jack as a part of the normal Centrex installation fee. For CentraNet services the installation is governed by existing tariffs.

6. Directory Information Services

DGS/TD provides three levels of information services. The first level is telephone number information to the public. Callers may ask for the telephone number of a specific state employee or state agency. If the information is in the State Directory it is provided to the calling party.

The second level is general state information. Callers query DGS/TD operators for specific state agency telephone numbers based on a general description of the services they are seeking. DGS/TD operators are required to fully understand the state services provided and try to match the service with the caller's inquiry. There is no charge to the calling party for these services. Costs are included in DGS/TD overhead and recovered as a part of the billing for other services.

The last level of information service is the published State Telephone Directory. Annually, DGS/TD publishes a directory with a list of the agencies and departments with key staff names and telephone numbers. The directory also includes a listing of key state employees by alphabetical listing with their associated department and telephone number. The telephone number does not have to be a CALDEX or CALNET number. DGS/TD is in the process of evaluating the addition of Internet addresses as a part of the directory listing. The charge for the directory is determined by DGS/TD costs and billed to agencies based on the number of directories they order. DGS/TD has two contracts with the Office of State Printing; 1) for all activities associated with printing and distribution and 2) soliciting directory advertising. DGS/TD also has an agreement with DGS Publications for directory sales to the public. Costs for the 1997 directory, excluding staff support is $258,049. Contracts are renewed annually based on encumbered funds.

The state uses a comprehensive PC MS Windows based system to administer directory listings and telephone operator directory information files. Agencies are currently DOS based but will migrate to Windows in March 1998. Each agency's directory listing is provided on diskette and hard copy for review, update, and return for import. These disks are submitted on a regular basis to Directory Information Services for update to the information database administration function. They then update the on-line information database as well as the published directory.. The availability of these resources to contractors has not been determined. It should be assumed that the selected contractor will be responsible for these functions.

7. Voice Mail Services

DGS/TD provides voice mail service through either contract services from the local serving utility or through equipment owned by DGS/TD.

In Sacramento DGS/TD owns an Octel Voice mail system that serves

some of the employees on the Sacramento CALDEX service. Throughout the rest of the state voice mail service is directly provided to users by the local serving utility (Pacific Bell or GTE) via master agreements with DGS/TD. When services are directly provided, the utilities also directly bill the user. With this arrangement, DGS/TD receives an administrative fee from the billing utility based on the number of voice mail boxes in service. This fee is for DGS/TD's role in administering the contract.

Some agencies, such as DMV, CalTrans, CHP, and the Department of Insurance have their own voice mail systems.

8. Local Services

The local dial tone service in non consolidated locations is provided by the local utility for that franchised area. There are no exclusive agreements or contracts for this service. Acquisition of this service is currently delegated by DGS/TD to the agencies. However, DGS/TD conducts periodic reviews of local service in terms of potential consolidation candidates. When there is a large concentration of local government telephone service in a community, DGS/TD conducts a consolidation study. Factors considered in the study include the present costs for service, local and long distance, and the costs if a consolidated service was installed in the location. Once the decision is made to implement a consolidated service, state agencies are then required to convert their existing service to the new service arrangement. This service is then made available to local governments in the area.

9. Data Services

DGS/TD offers three basic data services; Dedicated, Switched, and Frame Relay. Dedicated data services are essentially point-to-point bandwidth for an agency. This is provided by assigning bandwidth over the existing CALNET transport facilities or by allowing an agency to use the existing agreement with MCI for these services. The first choice is to use the existing CALNET infrastructure. Agencies using the CALNET infrastructure are billed for the services by DGS/TD. Agencies using the MCI contract are billed by MCI directly. DGS/TD is provided an administrative fee from MCI for all contract use.

Switched high speed (56KBPS and above) are provided through the CALNET transport facilities as well as through the MCI contract. CALNET offers the capability for users to dial into the network through ISDN service and obtain switched 56KBPS services for either data or video communications.

Frame Relay services are provided using a combination of CALNET transport and an agreement with Pacific Bell. Pacific Bell provides the access and frame switching within the LATAs. The CALNET transport is used to directly connect each of the Pacific Bell Frame Relay switches and

provide interLATA transport of the frames.

10. Teleconferencing

Audio teleconferencing is provided through state owned CALNET equipment, Pacific Bell and GTE consolidated local services, and through non-exclusive agreements with AT&T and MCI. Basic audio conferencing on CALDEX and the Centrex/CentraNet services are provided as a standard feature. There are three way conferencing, six port conferencing, and CALDEX offers a 30 port meet-me conference bridge and preset conferencing up to 25 predesignated conferees. The CALDEX services are billed by DGS/TD directly to the agency for services used. Centrex/CentraNet features are billed by the appropriate contractor.

AT&T and MCI offer operator assisted teleconferencing for those state users that find that standard conferencing does not meet their specific needs.

D. Overview of DGS/TD Owned Services

This section presents a descriptive overview of CALNET's consolidated services and system capabilities provided directly by DGS/TD. These are services provided using the equipment and systems acquired through the competitive CALNET bid. CALNET is a new generation, digital, integrated state Telecommunications Network supported by a functional, comprehensive Network Management and Control System. CALNET is a "state of the art" network capable of providing the feature functionality specified with Integrated Services Digital Network (ISDN), system wide Custom Local Area Signaling Services (CLASS), and Common Channel Signaling No. 7 (CCS7).

It should be noted that CALNET is not currently configured to deliver number portability services. "Number portability services" in a broad sense is still being defined. CALNET is, however, capable of communicating with a database server to obtain number translations for called/calling numbers as appropriate and then routing the call based on the database information returned, etc..

The current software release installed in all of the nodes (MSL06), NORTEL claims to be National ISDN-1 compliant. The packet handler installed in these nodes is also claimed to be compliant. Currently, CALNET does not have any National ISDN-1 services in operation although some internal ISDN services have been tested. CALDEX is believed to be capable of providing National ISDN-1 service.

While the software load in the CALNET switches has been modified to support 15 digit international dialing (some aspects of which are referred to as expanded digits features), there does not appear to be any change in the NPA (area code) digits (still limited to three); however the FREECALL support changes have been incorporated (allowing the second character of the NPA to have values other than zero and one).

CALNET was tested with Pacific Bell for TR-317 functionality and was reported by Pacific Bell to be compatible with their SS7 service. TR-394 testing of the CALNET switches has not been completed but the software is installed in the switches, (providing Virtual Access to Private Networks-VAPN as well as Equal Access End Office- EAEO capabilities) and is reported in the NORTEL feature documentation as supporting TR-394. Some parts of the functionality defined by TR-533 are reported to be included in CALNET. The specific TR-533 shortcomings of CALNET have not been identified but are in part suspected to be related to the FREECALL enhancements to the NPA.

Many potential misunderstandings of capabilities can exist for a collection of products such as are in CALNET. It is appropriate that each Business Partner seek basic information from which to reach independent conclusions regarding capabilities of CALNET.

The services provided under the CALNET contract are essentially private network type services allowing for direct state oversight and control. During the recent California earthquakes the public telecommunication networks were congested and restricted calling into the affected areas. At the same time, CALNET users enjoyed unrestricted access to the disaster communities. This allowed state agencies to coordinate disaster relief, evaluate affected sites for occupancy, and relocate state employees to continue to provide service to the local community.

The Local Exchange Carriers (LEC) tariffs which provide for private networks, private exchange services, and private line service are used to provide access to the network for various state agencies. Some LEC provided services that are not tariffed are obtained by DGS/TD on special contracts. DGS/TD is the customer of record for all utility orders used in the provision of services for CALNET.

Customer premises station equipment is not included as part of DGS/TD consolidated services. However, some equipment is provided at user locations to meet the service requirements, such as SMDR sensors and transmitters, channel banks, remote line loop back devices, transmission line responders, and status monitoring devices.

DGS/TD owns the equipment that establishes the point of presence at which all telecommunications service providers interface to the state equipment to provide integrated services. The point of presence is referred to as the State Carrier Interface Point (SCIP). There are Major, Minor, and Hybrid SCIPs. The major SCIPs house the state's class 4/5 switches along with the transport equipment. The minor SCIPs house only the transport equipment to consolidate services for the LATA. There is only one Hybrid SCIP, in San Diego. This site houses a remote class 5 switch that is connected to the Los Angeles class 4/5 switch.

In both Los Angeles and San Francisco the state is required to move the major SCIPs to other sites because the existing buildings are scheduled to be razed. Refer to Table 4 for specific locations of the SCIPs.

CALNET provides local telephone services referred to as CALDEX. These

services are provided directly from three state owned NORTEL Meridian SuperNode class 4/5 switches (MSN-100 switches) located in specified SCIP locations. These switches are running MSL06 software load with NSS feature support. All are products offered by NORTEL and are available to anyone. This local telephone service is provided through state owned interconnecting facilities to continuous property premises or on campus sites adjacent to the SCIPs. CALNET also provides local telephone service through three Remote Switching Modules hosted by the Major SCIPs.

We understand that the State of California is the only customer utilizing these switches with the NSS software features. The system was purchased through a specification of features paralleling those available in the central office environment. The switches interface with both LEC and IXC facilities and are compatible with IntraState, InterState and international services. It is also the state's understanding that the cabinet wiring is different than the DMS-100 and 250s, but the hardware modules are identical. The manufacturer would have to be contacted to determine the conversion capabilities of this product.

CALNET provides integrated (voice, data, public safety, and video), mixed mode (switched, time reserved, and private line) transport service. The SCIPs ensure the proper routing of traffic while the transport gateways assure optimum utilization of transport facilities.

The state owns a centralized, highly automated Network Management Center. This element of the Network Management System employs remote monitor and control equipment, distributed intelligence, and redundant backup devices at locations designed to prudently minimize the need for operating personnel and special skill requirements.

CALNET is a state premise hubbed, multi-node, mixed-mode, limited access, cost recovery oriented, integrated telecommunications network.

- State premises hubbed, because the switching nodes, the gateways to the transport network and interfaces to the local access facilities, are located in and on state property.
- Multi-node, because concentration hubs are installed to interface with the LEC and IXC provided facilities to form the DGS/TD SCIPs.
- Mixed mode, because the internode transport network is capable of simultaneously carrying mixed traffic from switched facilities and dedicated facilities.
- Limited access, because access to and use of this state private network is limited to the business requirements of state, county, local and non-profit tax supported agencies.
- Cost recovery oriented, because DGS/TD as operator and manager of CALNET charges to agencies, at cost based rates, for their usage on either a message sensitive or a fixed fee basis, depending on the facilities or services being utilized.

- Integrated, because to maximize the use of cost effective facilities, i.e., T3 (the equivalent of 28 T1s or 672 equivalent voice grades), DGS/TD consolidates a wide variety of voice, data, and video communications onto common facilities.

SCIP Location	Address
Sacramento Major SCIP	1115 P Street
San Francisco Major SCIP	525 Golden Gate Avenue *
Los Angeles Major SCIP	107 S. Broadway *
Stockton Minor SCIP	31 E. Channel Street
Redding Minor SCIP	2135 Akard Avenue
Fresno Minor SCIP	2550 Mariposa Avenue
Bakersfield Minor SCIP	3801 Pierce Road
San Diego Hybrid SCIP	1350 Front Street

* SCIP sites scheduled for demolition.

SCIP Locations

Table 4

1. Existing Network Components and Interfaces

To simplify discussion and understanding of CALNET, it can be considered to be comprised of four major components. See Figures 1, 2 and 3 for a diagram of how these components interrelate in each of our SCIP types.

- Transport Network
- Switching Network
- Off-Network Communication/Facilities
- Network Access

a) TRANSPORT NETWORK

In addition to the backbone carrier facilities, the transport network includes the gateways located in the SCIPs to provide an interface to the inter-exchange carrier and state facilities at the network switching nodes. The state owned gateways allow the direct insertion of various speed dedicated private line data circuits onto the transport network along with DS-1 multiplexed circuits. This technique improves the bandwidth efficiency when mixed mode traffic is present on the inter-node facilities. The gateways also

provide the means to dynamically reroute various voice, data, and video bandwidths to alternate facilities for limiting the effects of outages and other transmission failures.

b) NETWORK SWITCHING

Each major SCIP functions as a tandem toll center interface to the local exchange carrier and as an end office for its served subscribers. Traffic from the switch and attached private exchanges or dedicated access is organized and assembled on DS-1 circuits by the digital cross connect to be routed to the LEC, IXC wide area service, the data channel banks (with drops to the gateway), or the switch.

The state switching node routes local exchange area switched traffic to the LEC and only inter-exchange traffic to the transport network or IXC wide area service. The node is capable of routing base band dedicated data circuits directly to the transport network via the gateways.

All equipment at each of the SCIPs, including the transport gateway and certain agency premises equipment, is monitored by, controlled by, and transmits alarms and administrative data to the Network Management Center.

c) OFF-NET COMMUNICATIONS/FACILITIES

Off-net terminating traffic utilizes Feature Group B, or D services as well as direct termination through the CALDEX DOD trunks dependent upon location and type of call. Off-net inter-exchange and InterState calling utilizes IXC wide area services.

d) NETWORK ACCESS

LEC access lines are used to connect with CALNET class 4/5 switched and IXC wide area service. LEC private line service is used to connect with agency private and remote exchanges. Access is also provided via LEC private line and state owned channel banks to large data users and analog private exchange locations. CALNET uses Switched Access Service and acts as carrier of choice for certain state, county, local, and non-profit tax-supported agency locations. LEC private line services are used to provide dedicated data and video circuit access to the network. Continuous property locations near SCIPs are served directly from the class 4/5 switch. The Sacramento capitol transport complex is used for providing bandwidth capacity between connected state facilities and for access to CALNET (see Figure 4).

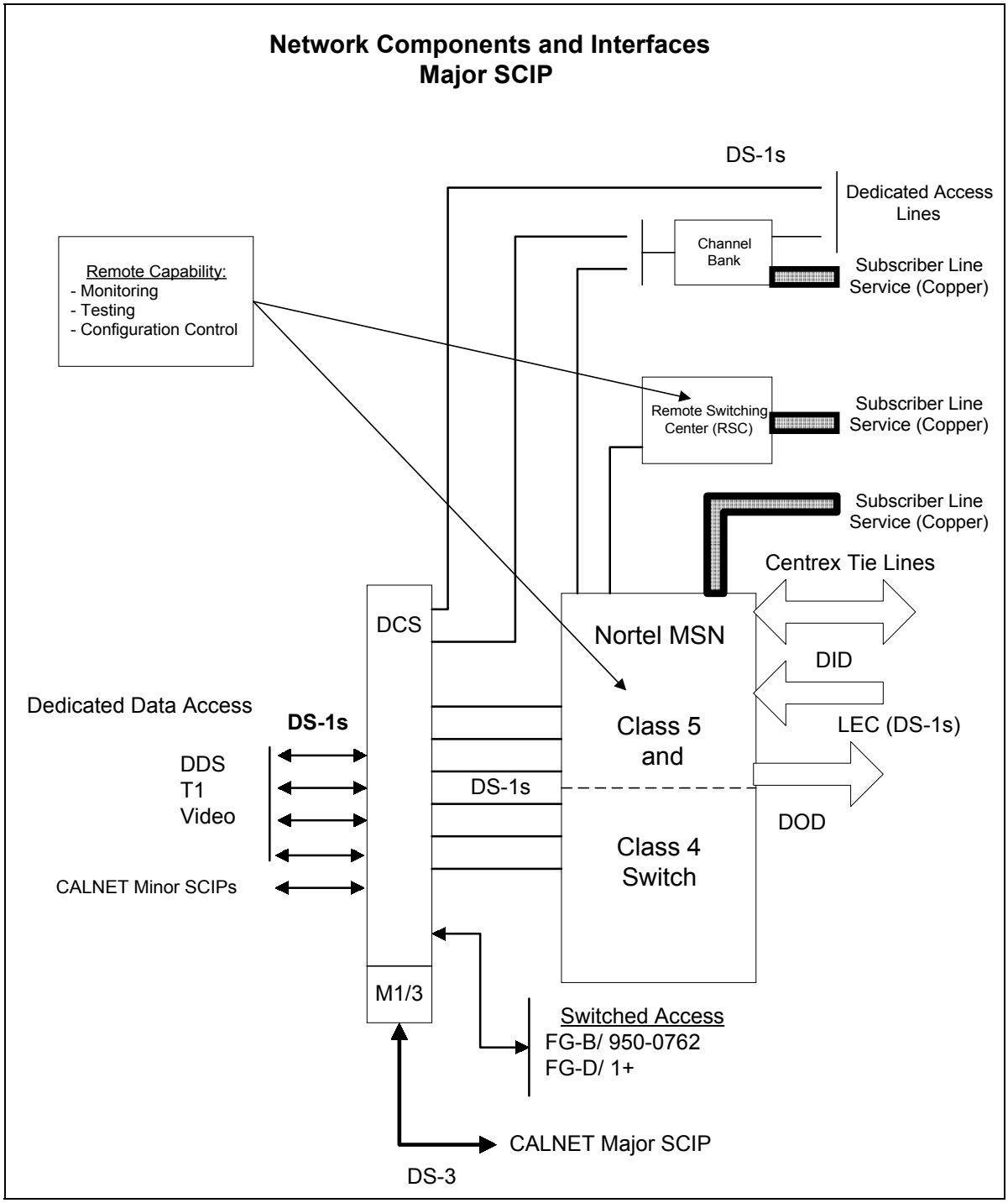
Network Components and Interfaces
Major SCIP
DS-1s
Dedicated Access Lines
Channel Bank
Subscriber Line Service (Copper)
Remote Capability:
- Monitoring
- Testing
- Configuration Control
Remote Switching Center (RSC)
Subscriber Line Service (Copper)
Subscriber Line Service (Copper)
Centrex Tie Lines
DCS
Nortel MSN
DID
Dedicated Data Access
DS-1s
Class 5 and
LEC (DS-1s)
DDS
T1
Video
DS-1s
DOD
Class 4 Switch
CALNET Minor SCIPs
M1/3
Switched Access
FG-B/ 950-0762
FG-D/ 1+
CALNET Major SCIP
DS-3

Figure 1

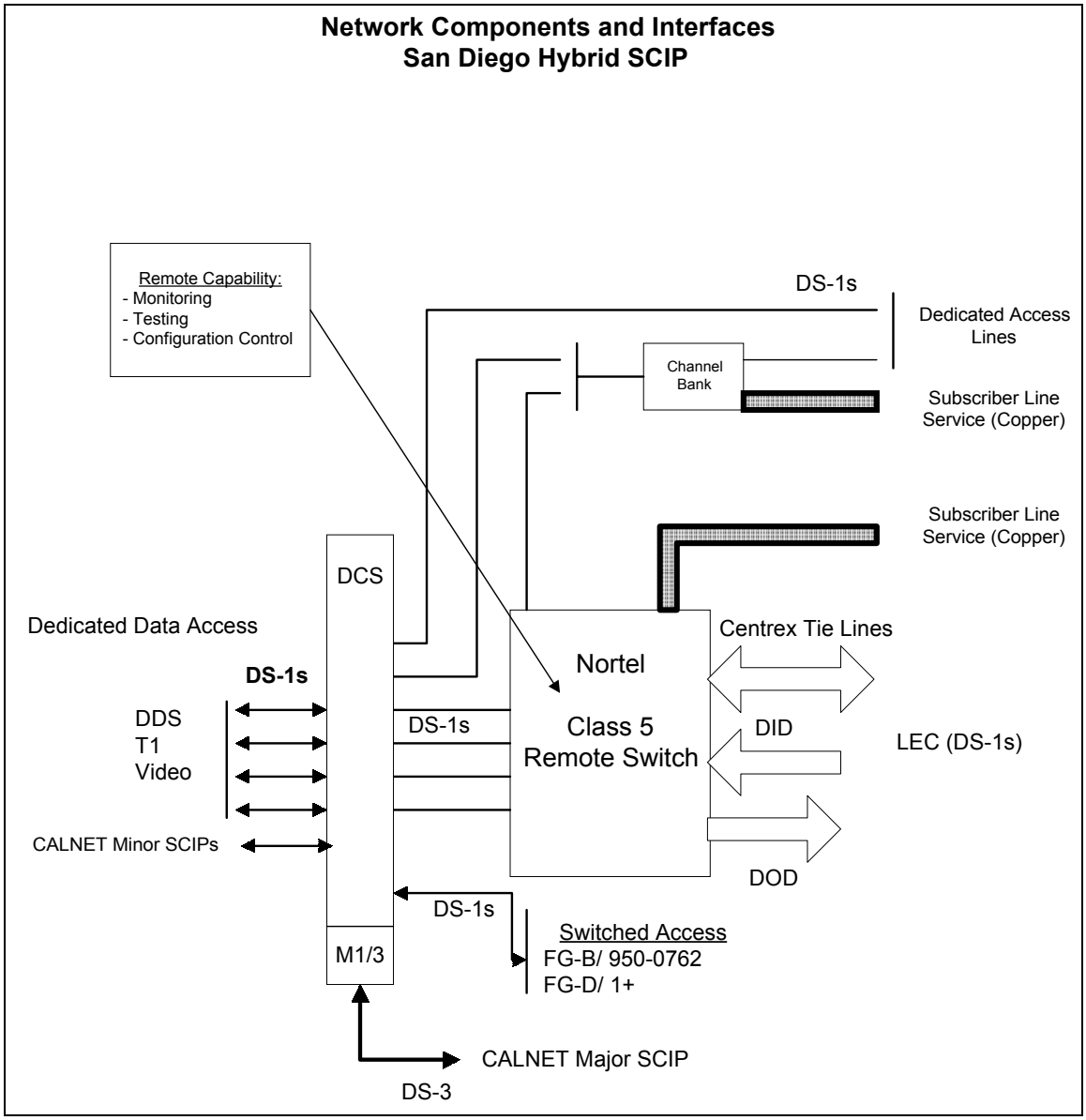
Network Components and Interfaces
San Diego Hybrid SCIP
Remote Capability:
- Monitoring
- Testing
- Configuration Control
DS-1s
Dedicated Access Lines
Channel Bank
Subscriber Line Service (Copper)
Subscriber Line Service (Copper)
DCS
Dedicated Data Access
Centrex Tie Lines
Nortel
DS-1s
DDS
T1
Video
DS-1s
Class 5
Remote Switch
DID
LEC (DS-1s)
CALNET Minor SCIPs
DOD
DS-1s
Switched Access
FG-B/ 950-0762
FG-D/ 1+
M1/3
CALNET Major SCIP
DS-3

Figure 2

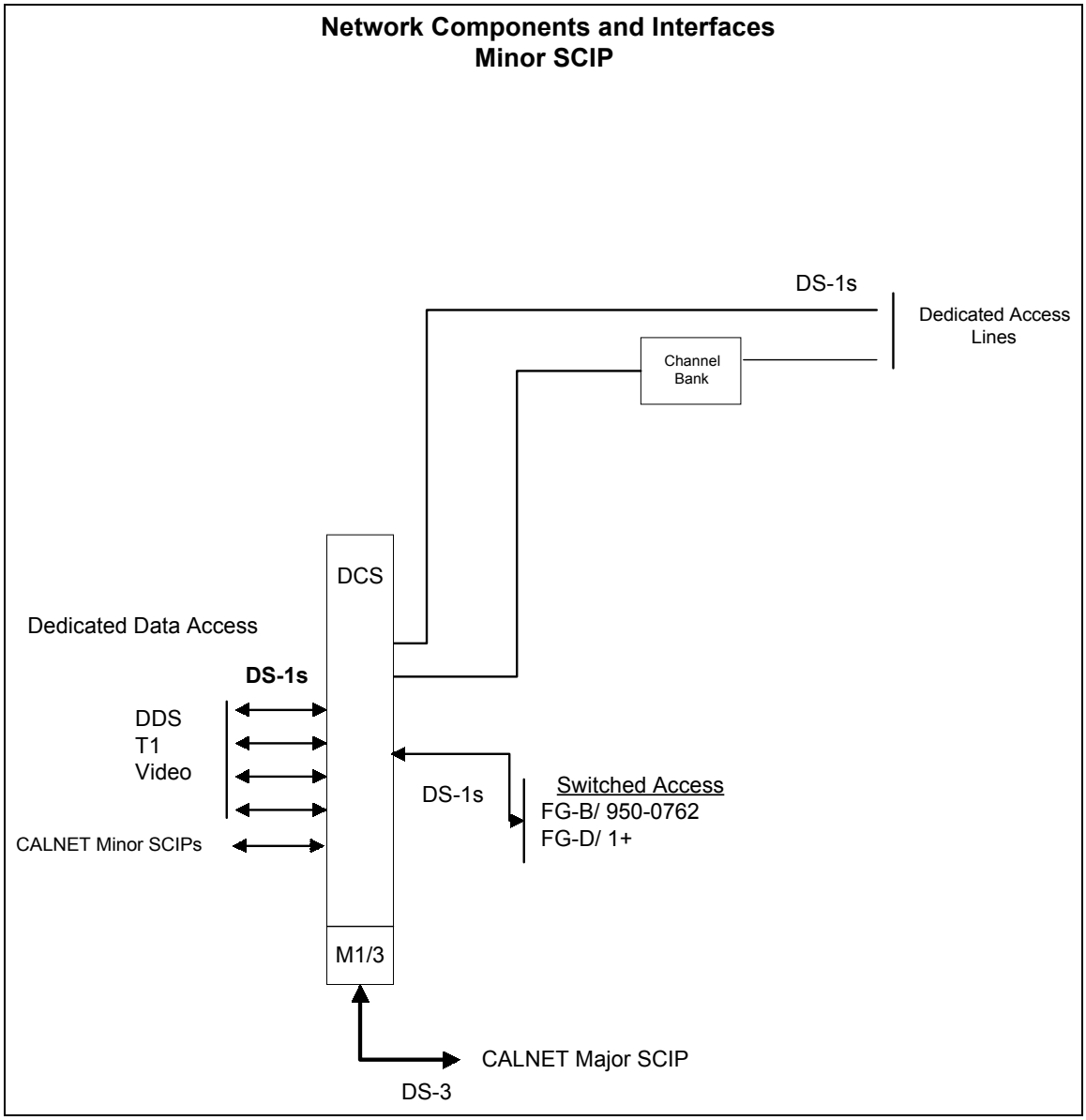
Network Components and Interfaces
Minor SCIP
DS-1s
Dedicated Access Lines
Channel Bank
DCS
Dedicated Data Access
DS-1s
DDS
T1
Video
CALNET Minor SCIPs
DS-1s
Switched Access
FG-B/ 950-0762
FG-D/ 1+
M1/3
CALNET Major SCIP
DS-3

Figure 3

Sacramento Conduit Structure

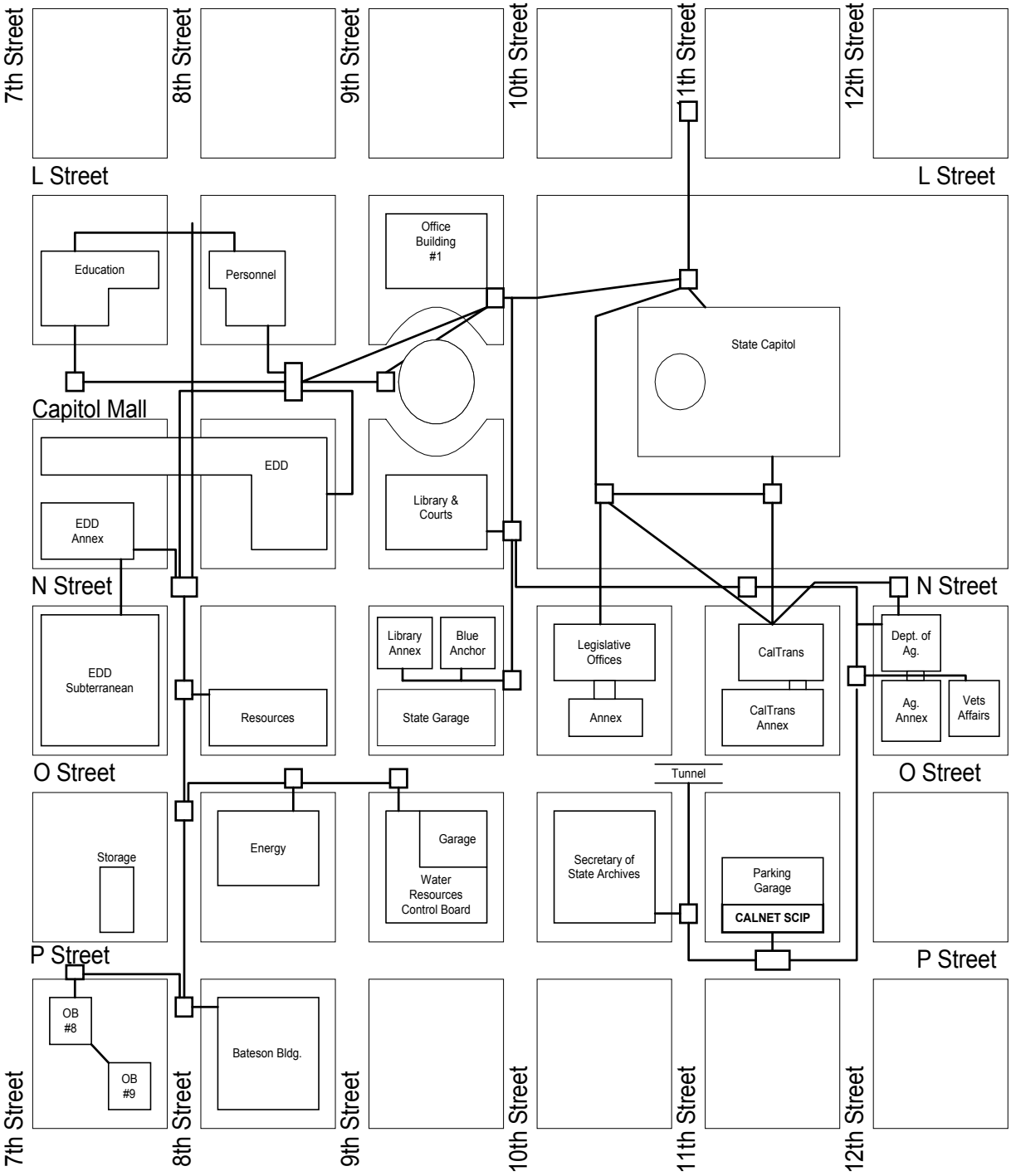

Figure 4

E. System and Usage Volumes

DGS/TD manages two basic types of services. Those provided under contract directly to the government user by the contractor and those provided directly by DGS/TD. Both of these services are managed by DGS/TD and are included as a part of the total CALNET suite of services.

1. Contracted Services

The following is a list of the contracted services with the present estimated usage levels of each service:

a) DGS/TD Consolidated Pacific Bell Centrex Service

These are consolidated Centrex locations managed by DGS/TD. The majority of these users fall within DGS/TD's administrative oversight. Table 5 lists each location and their associated number of lines.

b) Pacific Bell Centrex Service - Stand-alone non DGS/TD Managed

These are Centrexes using the existing DGS/TD agreement with Pacific Bell. They are not consolidated DGS/TD Centrexes. Many of these sites are typically managed by governmental agencies outside of the administrative oversight of DGS/TD. Some of these locations are managed by state agencies under delegation from DGS/TD. Table 6 lists each location and their associated number of lines.

DGS/TD Consolidated Pacific Bell Centrex Service Locations

Location	Lines
Auburn	351
Bakersfield	717
Berkeley	2,106
Canoga Park	344
Chico	1,727
Clovis	122
Costa Mesa	886
El Monte	1,207
Eureka	2,202
Fair Oaks	1,517
Fairfield	679
Folsom	1,033
Fremont	488
Fresno	1,910
Fullerton	3,376
Gardena	293
Glendale	683
Hayward	70
Inglewood	284
Lodi	77
Los Angeles (03)	623
Los Angeles (06)	279
Los Angeles (09)	553
Los Angeles (11)	1,379
Marysville	1,512
Merced	407
Modesto	293
Monterey	686
North Sacramento	4,324
Northridge	24
Oakland (03)	4,310
Oakland (11)	316
Oakland (12)	484
Oroville	268
Palo Alto	50
Redding (02)	4,332
Redding (11)	668
Riverside	1,535
Sacramento (01)	36,506
Sacramento (02)	113
Sacramento (03)	1661
Sacramento (11)	6,347
Sacramento (12)	3,372
Sacramento (13)	1,555
Salinas	158
San Diego (1)	952
San Diego (11)	55
San Diego (2)	1,088
San Diego (3)	1,255
San Francisco (4)	1,093
San Francisco (6)	180
San Francisco (21)	3,617
San Jose (02)	4,743
San Jose (21)	962
San Luis Obispo	1,020
San Mateo	611
Santa Ana (1)	1,110
Santa Rosa	1,459
Stockton	1,255
Ukiah	1,599
Vallejo	1,280
Van Nuys	724
Ventura	633
Yountville	631
Yuba City	857

TOTAL CENTREX LINES: 116,951

Table 5

Pacific Bell Centrexes Under Contract Not Managed By DGS

Location	Lines	Location	Lines	Location	Lines	Location	Lines
Anaheim	58	Esparto	22	Modesto	16	San Fran (13)	159
Anderson	174	Fairfield(01)	787	Monterey City	393	San Fran (19)	278
Arcadia	248	Fillmore	87	Mountain View	834	San Leandro	46
Arcata	187	Forrestville	55	SLOCnty	10	SLO County	3,941
Arroyo Grande	631	Fort Bragg	265	Napa State Hos	1,075	San Marcos	833
Atascadero	411	Fresno(11)	53	Nevada City	88	San Mateo	424
Atascadero	1,036	Fresno(12)	25	Newcastle	23	San Mateo Co	311
Atwater	96	Fresno(14)	31	North Sac (11)	189	San Rafael	389
Benicia	109	Galt	30	North Sac (12)	26	Santa Clara	59
BuenaPark	167	Gardena(01)	1,069	Oakdale	86	Santa Cruz(1)	161
Burbank	128	Georgetown	38	Oceanside	107	Santa Cruz(11)	68
Burlingame	181	Grass Valley	61	Ojai	136	Sonoma Co.	523
Calabasas	18	Gustine	24	Oakview`	1	Soda Springs	56
Calexico	75	Half Moon Bay	140	Orange	287	Sebastopol	181
Calistoga	53	Hayward	83	Orangecove	21	San Bernardo	111
Cambria	24	Healdsburg	263	Orland	181	Simi Valley	122
Carson	101	Hercules	33	Otay	21	South Gate	324
Castiac	9	Hollister	304	Pasadena	437	S Lake Tahoe	401
Chowchilla	43	Hollywood	181	Patton	107	St.Helena	108
ChulaVista	91	Huntington Pk	147	Petaluma	219	Standford	117
Cloverdale	42	Irvine	1,196	Placerville	65	Templeton	80
Clovis	291	Lakeport	70	PalmDale	16	Tiburon	38
Coalinga	132	Lamont	43	Porterville	853	Torrance	210
Compton	79	Larkspur	131	PasoRobles	136	Truckee	267
Concord	248	Lawndale	63	Quincy	384	Turlock	1,017
Corning	42	Lincoln	144	Rnch Bernardo	72	Tustin	36
Corona	62	LiveOak	50	RedBluff	272	Ventura(11)	212
Cotatti	38	LA (07)	337	Redwood City	87	Ventura(2)	452
Carlsbad	84	LA (12)	35	Riverbank	48	Moore Park	52
Culver City	258	LA (15)	138	Rocklin	201	Visalia	390
Davis	256	LA (34)	29	Rosemead	206	Watsonville	365
Diamond Hills	13	LA (35)	179	Salinas	301	Weed	33
Dixon	43	Loyalton	59	Salinas(12)	38	W Sacramento	315
Downiville	18	Madera	37	San Carlos	4	Wheatland	40
El Cajon	110	McKinlyville	71	San Diego(12)	84	Willows	287
ElCentro	90	Mendota	41	San Diego(16)	215	Windsor	63
El Dorado Hills	13	Merced(01)	254	San Diego(6)	146	Winters	57
El Sequndo	1	Mill Valley	79	San Fran (5)	109	Walnut Creek	191
Escondido	90	Milpitas	452	San Fran (17)	103	Woodland	135
						Yreka	324

TOTAL CENTREX LINES: 33,797

Table 6

c) GTE CentraNet Service

These are consolidated CentraNet locations managed by DGS/TD. The majority of these users fall within DGS/TD's administrative oversight..

DGS/TD Managed Locations

Long Beach	819
Santa Barbara	305
San Bernardino	1,025
TOTAL DGS/TD CENTRANET LINES:	2,149
Non DGS/TD Managed State CentraNet Lines:	7,574
Non DGS/TD Managed Local Government Lines:	1,257
TOTAL CENTRANET LINES:	**10,980**

d) Roseville Centrex Service

DGS/TD manages a single Centrex in Roseville with 392 lines. There are no proprietary sets at this Centrex.

e) Pacific Bell Voice Mail Service

Southern California	9,827 Mail Boxes
Northern California	47,505 Mail Boxes
TOTAL Mail Boxes	**57,332**

f) GTE Voice Mail Service

Southern California	1,543 Mail Boxes

g) IntraLATA Long Distance Service

Pacific Bell Territory	44 million minutes per year
GTE territory	9 million minutes per year

h) Frame Relay Service

- 1,183 PVCs statewide and growing at 8-10 per business day
- 900 DS0 and 571 T1 access lines

2. DGS/TD Provided Services

The following is a list of the services provided directly by DGS/TD and the associated usage:

a) Long Distance Usage

CALNET carries 215,000,000 minutes of annual usage which includes almost 3,000,000 minutes per year of calling card usage. The state is in a program to migrate an additional 37, 000,000 minutes of annual state usage on to the network. It is important to note that of the total 215,000,000 annual minutes, almost 10% (21,300,000) are local government users.

The following is the intermachine trunk traffic for the random time period from April 21, 1997, through April 25, 1997:

	Between LA and SAC	Between SAC and SF	Between LA and SF
Total Usage - Minutes	1,053,853	873,402	220,322
Busy Hour	2:00 PM	2:00 PM	10:00 AM
Average Holding Time - Minutes	2.64	2.76	3.09

b) CALNET Trunking

The CALNET network consists of over 10,000 trunks connecting three major nodes, five minor nodes, seven local concentration points, 103 Centrexes and PBXs, 61 Feature Group D Trunk Groups, 40 Feature Group B Trunk Groups, and 19 T1s for Frame Relay transport. These combine to provide statewide telephone and data services to state agencies. Figure 5 shows the CALNET backbone transport configuration.

The overflow traffic handling is as follows:

LA to SAC: WATS 5

SAC to SF: WATS 5 then DOD

LA to SF: WATS 5 then DOD

SAC to LA: WATS 5 then DOD

SF to SAC: WATS 5 then DOD

SF to LA: WATS 5 then DOD

The Digital Cross Connect System manufacturer is DSC Communications Co. The system configuration is as follows:

SCIP	DS3 Capacity	DS3 Equipped	DS1 Capacity	DS1 Equipped	Model
Los Angeles	8	8	336	208	CS-1L
Sacramento	8	8	448	351	CS-1L
San Francisco	8	8	336	168	CS-1L
Redding	0	0	84	62	CS-1S
Stockton	0	0	84	80	CS-1S
Fresno	0	0	84	73	CS-1S
Bakersfield	0	0	84	59	CS-1S
San Diego	0	0	84	74	CS-1S

The M1/3 manufacturer is Rockwell Int. The M1/3 system configuration is as follows:

SCIP	Quantity	DS3 Capacity	DS3 Equipped	DS1 Capacity	DS1 Equipped	Model
Los Angeles	2	4	4	112	112	DML 3X50 Dual Muldem
Sacramento	6	12	12	336	336	DML 3X50 Dual Muldem
Sacramento	8	8	8	224	224	DML 3X50 Muldem Lightwave
San Diego	1	2	2	56	56	DML 3X50 Dual Muldem
San Diego	1	1	1	28	28	DML 3X50 Muldem Lightwave
San Francisco	1	2	2	56	56	DML 3X50 Dual Muldem
Stockton	1	1	1	28	28	DML 3X50 Muldem Lightwave

c) Local Telephone Service - CALDEX

DGS/TD provides local business telephone service, similar to Centrex, to state agencies in Sacramento, Los Angeles, San Francisco, and San Diego. This is known as **CAL**ifornia **D**igital **EX**change (CALDEX). Included in the service is the use of NORTEL proprietary telephone sets to provide enhanced services to users. The sets are purchased by the using agency. Table 7 is a list of the total current quantity of lines by location and the number of proprietary sets included in the line count:

Location	Lines	Proprietary Sets
Sacramento Capitol Complex	22,151	2,223
Sacramento DMV Complex	3,600	3
Sacramento DGS/TD Complex	735	131
Los Angeles Complex	5,746	1,030
San Francisco Complex	1,470	13
San Diego Remote Site	597	81
Total CALDEX Lines	**34,299**	**3,481**

Table 7 CALDEX Lines in service by Location

In addition to those lines listed in Table 7, DGS/TD is in the process of adding a new CALDEX site in Oakland. It is scheduled to cut over in April 1998 with 2,300 new lines.

In each of the major CALDEX sites the Division has installed tie lines to the local consolidated Centrex service in the area to provide a wide area calling arrangement.

d) State Owned Voice Mail Services

DGS/TD owns an Octel voice mail system that serves 900 of the Sacramento CALDEX users. The remainder of the Sacramento CALDEX users and CALDEX users in Los Angeles, San Francisco, and San Diego requiring voice mail obtain the service through the Pacific Bell voice mail agreement. In addition to this voice mail equipment, some agencies have also acquired separate equipment. The following are examples and estimated quantities:

DMV	1,047 Mail Boxes
CalTrans	1,418 Mail Boxes
Department of Insurance	1,288 Mail Boxes

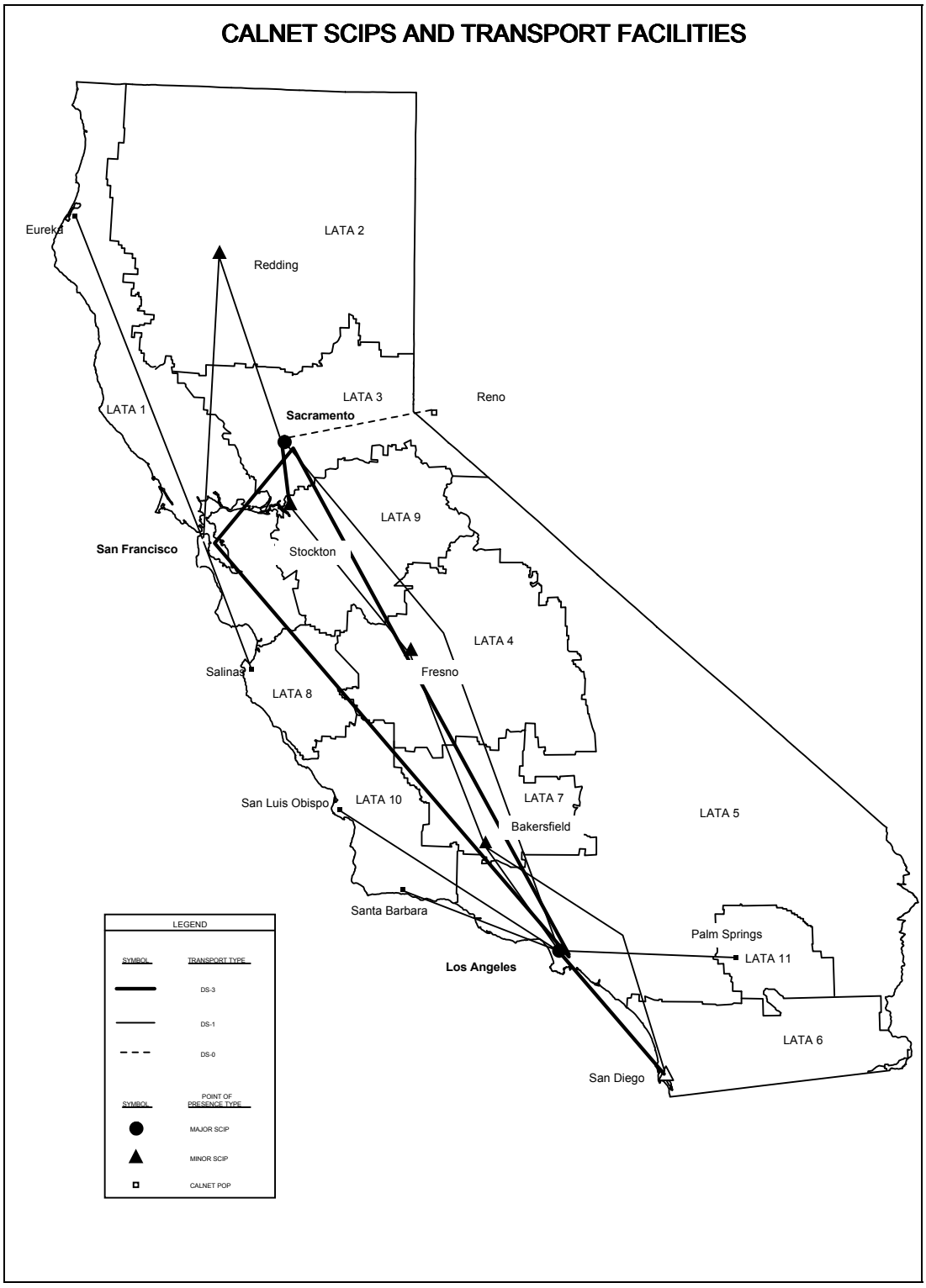
CALNET SCIPS AND TRANSPORT FACILITIES
Eureka
LATA 2
Redding
LATA 1
LATA 3
Reno
Sacramento
LATA 9
San Francisco
Stockton
LATA 4
Salinas
Fresno
LATA 8
San Luis Obispo
LATA 10
LATA 7
LATA 5
Bakersfield
Santa Barbara
Palm Springs
LATA 11
Los Angeles
LATA 6
San Diego
LEGEND
SYMBOL
TRANSPORT TYPE
DS-3
DS-1
DS-0
SYMBOL
POINT OF PRESENCE TYPE
MAJOR SCIP
MINOR SCIP
CALNET POP

Figure 5

e) Frame Relay Transport

DGS/TD provides the interLATA transport for the Frame Relay services provided through an agreement with Pacific Bell. Today the service supports over 1,100 Permanent Virtual Connections (PVCs) for various state agencies throughout the state. DGS/TD provides a dedicated connection from the State Carrier Interface Points (SCIPs) to the Pacific Bell Frame Relay switch in the LATA. The CALNET transport network provides the interLATA connectivity necessary to ensure reliable end to end Frame Relay service. Figure 6 depicts the DGS/TD provided backbone structure based on existing service. DGS/TD is working closely with HWDC and Teale Data Center to add approximately 2,300 additional PVCs to this network within the next year.

The present CALNET supported Frame Relay service consists of 1,183 PVCs. The network is growing at about 8 to 10 PVCs per business day. There are presently 900 DS0 and 571 T-1 access links into the Frame Relay network. The CALNET backbone provides 19 T-1s for Frame Relay transport.

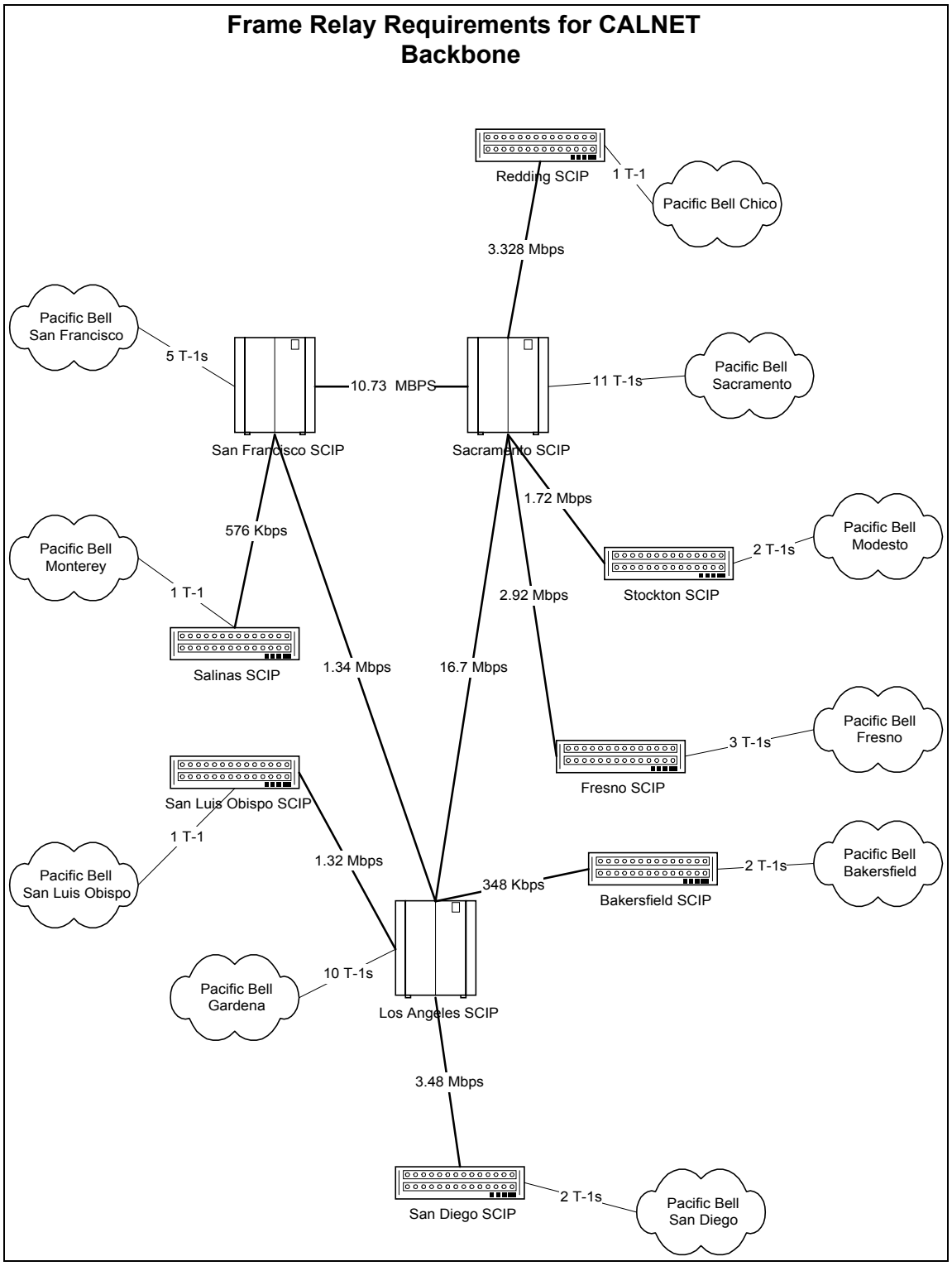
Frame Relay Requirements for CALNET Backbone
Redding SCIP
1 T-1
Pacific Bell Chico
3.328 Mbps
Pacific Bell San Francisco
5 T-1s
10.73 MBPS
11 T-1s
Pacific Bell Sacramento
San Francisco SCIP
Sacramento SCIP
1.72 Mbps
576 Kbps
Pacific Bell Monterey
1 T-1
2 T-1s
Pacific Bell Modesto
Stockton SCIP
2.92 Mbps
Salinas SCIP
1.34 Mbps
16.7 Mbps
Pacific Bell Fresno
3 T-1s
Fresno SCIP
San Luis Obispo SCIP
1 T-1
Pacific Bell San Luis Obispo
1.32 Mbps
348 Kbps
Bakersfield SCIP
2 T-1s
Pacific Bell Bakersfield
10 T-1s
Pacific Bell Gardena
Los Angeles SCIP
3.48 Mbps
San Diego SCIP
2 T-1s
Pacific Bell San Diego

Figure 6